A Project of

The Sacramento Valley

Water Management Agreement

Sutter Extension Water District Sutter-Butte Main Canal Lining Project

CALFED
BAY-DELTA
PROGRAM

PREPARED FOR

CALIFORNIA DEPARTMENT OF WATER RESOURCES
WATER USE EFFICIENCY PROGRAM

March 1, 2002

W022002007RDD_920

Consolidated Water Use Efficiency 2002 PSP
Proposal Part One:
A. Project Information Form

1. Applying for (select one):
   - ☐ (a) Prop 13 Urban Water Conservation Capital Outlay Grant
   - ☐ (b) Prop 13 Agricultural Water Conservation Capital Outlay Feasibility Study Grant
   - ☒ (c) DWR Water Use Efficiency Project
2. Principal applicant (Organization or affiliation): Joint Water Districts Board (District)– Sutter Extension

   Water District (SEWD), Butte Water District, Biggs/ West Gridley Water District, Richvale Irrigation District
3. Project Title: Sutter Extension Water District, Sutter-Butte Main Canal Lining Project to Address Quantifiable Objectives 38, 44, 46, and 47
4. Person authorized to sign and submit proposal:
   - Name, title: Doak Cotter, Manager, Joint Board
   - Mailing address: 735 Virginia Street, Gridley, CA 95958
   - Telephone: 530/846-3307
   - Fax.: 530/846-2252
   - E-mail: doak@wcisp.com
5. Contact person (if different):
   - Name, title.: same
   - Mailing address.:
   - Telephone:
   - Fax.:
   - E-mail:
6. Funds requested (dollar amount): $1.2 million (feasibility study)
7. Applicant funds pledged (dollar amount): O&M of facilities (to be determined by feasibility study)

Consolidated Water Use Efficiency 2002 PSP
Proposal Part One:
A. Project Information Form (continued)

8. Total project costs (dollar amount): $1.2 million (feasibility study)

   $29.25 million (project total)

9. Estimated total quantifiable project benefits (dollar amount): To be determined by feasibility study

   Percentage of benefit to be accrued by applicant: _____

   Percentage of benefit to be accrued by CALFED or others: _____

10. Estimated annual amount of water to be saved (acre-feet): To be determined by feasibility study, but estimated up to 24,000 acre-feet per year

    Estimated total amount of water to be saved (acre-feet): _____

    Over ___ years

    Estimated benefits to be realized in terms of water quality, instream flow, other: _____

11. Duration of project (month/year to month/year): November 2002 – December 2003

12. State Assembly District where the project is to be conducted: Assembly Districts 2 and 3

13. State Senate District where the project is to be conducted: State Senate Districts 1 and 4

14. Congressional district(s) where the project is to be conducted: Congressional Districts 2 and 4

15. County where the project is to be conducted: Sutter & Butte

16. Date most recent Urban Water Management Plan submitted to the Department of Water Resources: _____

17. Type of applicant (select one): Prop 13 Urban Grants and Prop 13 Agricultural Feasibility Study Grants:
    - ☐ (a) city
    - ☐ (b) county
    - ☐ (c) city and county
    - ☐ (d) joint power authority
    - ☒ (e) other political subdivision of the State, including public water district
    - ☐ (f) incorporated mutual water company

Consolidated Water Use Efficiency 2002 PSP
Proposal Part One:
A. Project Information Form (continued)

DWR WUE Projects: the above entities (a) through (f) or:

- ☒ (g) investor-owned utility
- ☐ (h) non-profit organization
- ☐ (i) tribe
- ☐ (j) university
- ☐ (k) state agency
- ☐ (l) federal agency

18. Project focus:

- ☒ (a) agricultural
- ☐ (b) urban

19. Project type (select one):
Prop 13 Urban Grant or Prop 13 Agricultural Feasibility Study Grant capital outlay project related to:

- ☐ (a) implementation of Urban Best Management Practices
- ☐ (b) implementation of Agricultural Efficient Water Management Practices
- ☐ (c) implementation of Quantifiable Objectives (include QO number(s)
- ☐ (d) other (specify)

_____

DWR WUE Project related to:

- ☐ (e) implementation of Urban Best Management Practices
- ☐ (f) implementation of Agricultural Efficient Water Management Practices
- ☒ (g) implementation of Quantifiable Objectives (include QO number(s) 38, 44, 46, 47
- ☐ (h) innovative projects (initial investigation of new technologies, methodologies, approaches, or institutional frameworks)
- ☐ (i) research or pilot projects
- ☐ (j) education or public information programs
- ☐ (k) other (specify)

20. Do the actions in this proposal involve physical changes in land use, or potential future changes in land use?

- ☐ (a) yes
- ☒ (b) no (funding for feasibility study only)

If yes, the applicant must complete the CALFED If yes, the applicant must complete the CAL PSP Land Use Checklist found at http://calfed.water.ca.gov/environmental_docs.html and submit it with the proposal.

Consolidated Water Use Efficiency 2002 PSP
Proposal Part One:
B. Signature Page

By signing below, the official declares the following:

The truthfulness of all representations in the proposal;

The individual signing the form is authorized to submit the proposal on behalf of the applicant; and

The individual signing the form read and understood the conflict of interest and confidentiality section and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant.

_____	Doak Cotter, Manager, Joint Board	3-01-2002
Signature	Name and title	Date

Proposal Part Two

Project Summary

The purpose of this project is to evaluate and potentially implement lining of the Sutter-Butte Main Canal (Main Canal). As illustrated in Figure 1, The Main Canal delivers Feather River water supply to four districts that are located generally south and west of Lake Oroville and the Feather River along the eastern side of the Sacramento Valley—Richvale Irrigation District, Biggs/West Gridley Water District, Butte Water District, and the Sutter Extension Water District. These four water districts hold senior water rights on the Feather River, pre-dating the State Water Project. Following the construction of the Sate Water Project's Oroville Dam and related downstream facilities, the canal began taking supply from a new turnout on the Thermalito Afterbay. The canal route runs roughly north to south, with major turnouts to each of the four districts' internal distribution systems. The canal is approximately 17 miles long, and is unlined. The existing operating capacity ranges from approximately 1,600 cubic feet per second (cfs) at the upstream end to approximately 500 cfs at the downstream end. Operation and maintenance (O&M) of the Main Canal is conducted by the Joint Water Districts Board, which includes representatives of each of the four districts.

The seepage losses along the Main Canal are estimated by the Joint Water Districts Board to be approximately 1 percent of the conveyance flow per mile. The seepage loss estimated by the Joint Water Districts Board translates to approximately 31,500 ac-ft/yr. The proposed canal lining would reduce the canal seepage to approximately 2 percent of the total annual conveyance volume, or approximately 7,500 ac-ft/yr. The reduced seepage rate would reduce required Feather River diversions to the Joint Water Districts Board canal by approximately 24,000 ac-ft/yr. The total project cost is $29.25 million with the initial feasibility study estimated to cost $1.2 million. This phase of the project focuses on the engineering, environmental, construction management and administrative costs.

The primary water supply and management benefit of the canal lining would be reduced seepage losses, which in turn would reduce diversions of Feather River surface water supplies from the Thermalito Afterbay. This reduced diversion quantity could then be stored in Oroville Reservoir and its release could be managed to serve other beneficial uses. The canal lining would also increase the canal's capacity, improve operations efficiency, help control nuisance weeds, possibly reduce overall O&M costs, and allow for year-round operation of the lined portion of the canal.

A. Scope of Work: Relevance and Importance

1. Nature, Scope, and Objectives

The proposed project seeks to improve the Sutter-Butte Main Canal (Main Canal) to enable replacement of an unlined canal and provide the original delivery capacity. The scope

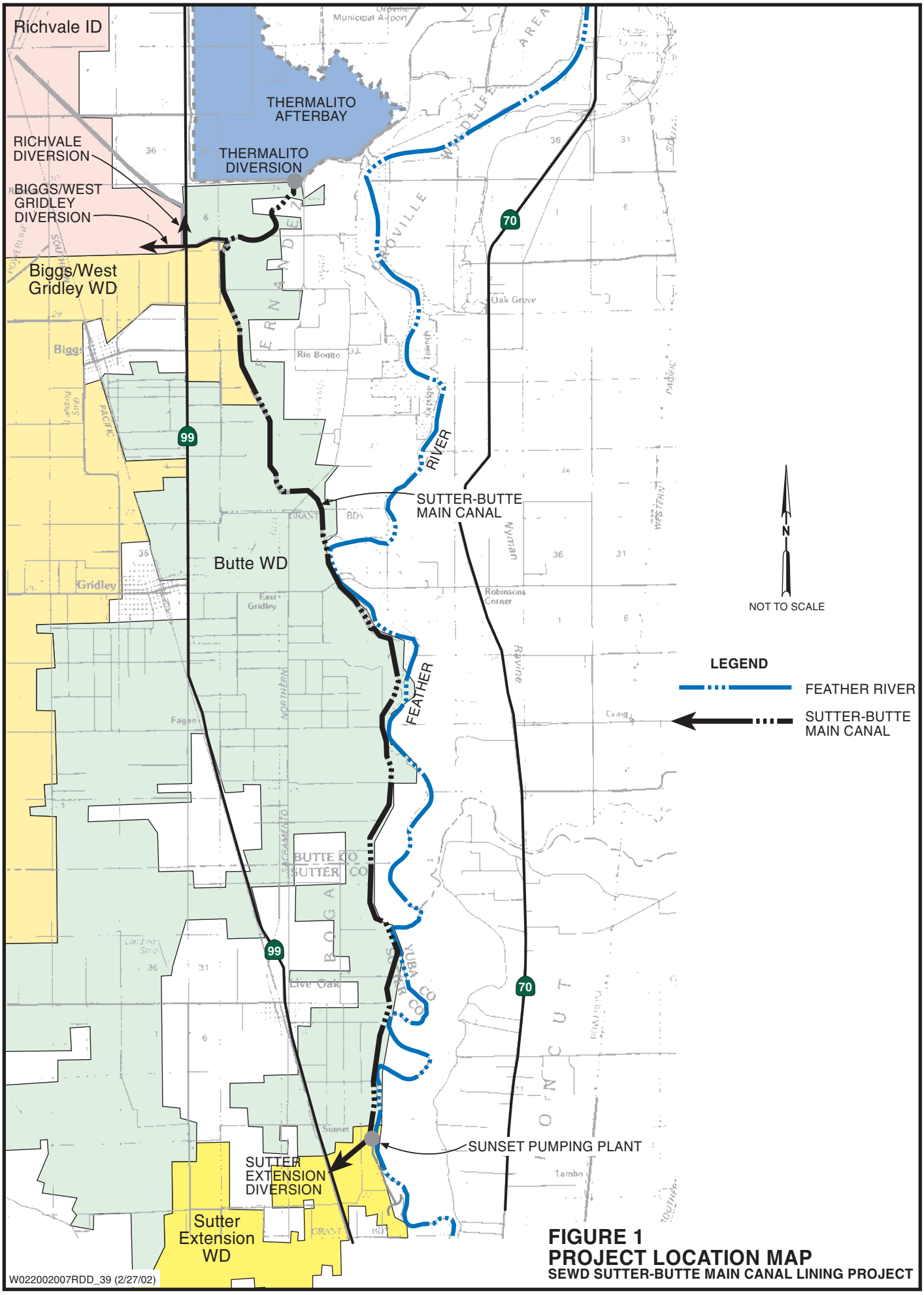

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FIGURE 1
PROJECT LOCATION MAP
SEWD SUTTER-BUTTE MAIN CANAL LINING PROJECT

includes replacing approximately unlined channel with a lined channel. Project goals are to replace and improve inefficient conveyance facilities to achieve the objectives of maximizing delivery capacity, improving delivery reliability, and eliminating conveyance losses. **These goals and objectives respond to CALFED Quantifiable Objectives 38, 44, 46, and 47.**

2. Critical Local, Regional, Bay-Delta, State, or Federal Water Issues

The proposed project was identified in the Short-term Workplan developed as part of the Sacramento Valley Water Management Agreement (Agreement). This unprecedented agreement was developed by Sacramento Valley water users, export interests, the California Department of Water Resources (DWR), and U.S. Bureau of Reclamation (USBR) as an alternative to a potentially contentious process within Phase 8 of the State Water Resources Control Board (SWRCB) Bay-Delta Water Rights Hearings. The intent of the Agreement is to establish a framework to meet water supply, water quality, and environmental needs through a cooperative project development process. Each of the water system improvement projects evaluated under the Agreement, including the project described below, would provide benefits toward achieving at least one of four quantifiable objectives:

(1) Provide flow to improve aquatic ecosystem conditions

(2) Decrease nonproductive evapotranspiration (ET)

(3) Provide long-term diversion flexibility to increase the water supply for beneficial uses

(4) Reduce salinity to enhance and maintain beneficial uses of water.

CALFED Quantifiable Objectives

The project is consistent and help achieve the following CALFED Quantifiable Objectives for Sub-Region 5:

- Quantifiable Objective 38 – Provide Flow to improve aquatic ecosystem conditions
- Quantifiable Objective 44 – Reduce temperatures to enhance and maintain aquatic species populations
- Quantifiable Objective – Decrease nonproductive ET to increase water supply for beneficial uses
- Quantifiable Objective – Provide long-term diversion flexibility to increase water supply for beneficial uses

Relation to Other Local, Regional, Bay-Delta, State, and Federal Objectives

This project is consistent with local or regional water management plants and other resource management plans. USBR, in cooperation with USFWS and CDFG, is currently evaluating a range of improvements to the Biggs/West Gridley Water District and Sutter Extension Water District conveyance systems to allow these districts to convey water to the Gray Lodge Wildlife Area and Sutter National Wildlife Refuge (NWR). The lining of the Main Canal would support the ability to make winter season deliveries to the refuges, depending on the final scope of improvements to each district's internal distribution facilities.

This project is needed to improve water supply reliability and eliminate conveyance losses within the project area. Therefore, it will provide water conservation benefits consistent with the following primary CALFED objective:

- Reduce the mismatch between Bay-Delta water supplies and current and projected beneficial uses dependent on the Bay-Delta system

Additionally, the proposed project will be consistent with the following specific objectives of the CALFED Water Use Efficiency Program[1]:

- Reduce existing irrecoverable losses
- Achieve multiple benefits
- Preserve local flexibility
- Build on existing water conservation and management programs
- Use incentive-based actions over regulatory actions

B. Scope of Work: Technical/Scientific Merit, Feasibility, Monitoring, and Assessment

1. Methods, Procedures, and Facilities

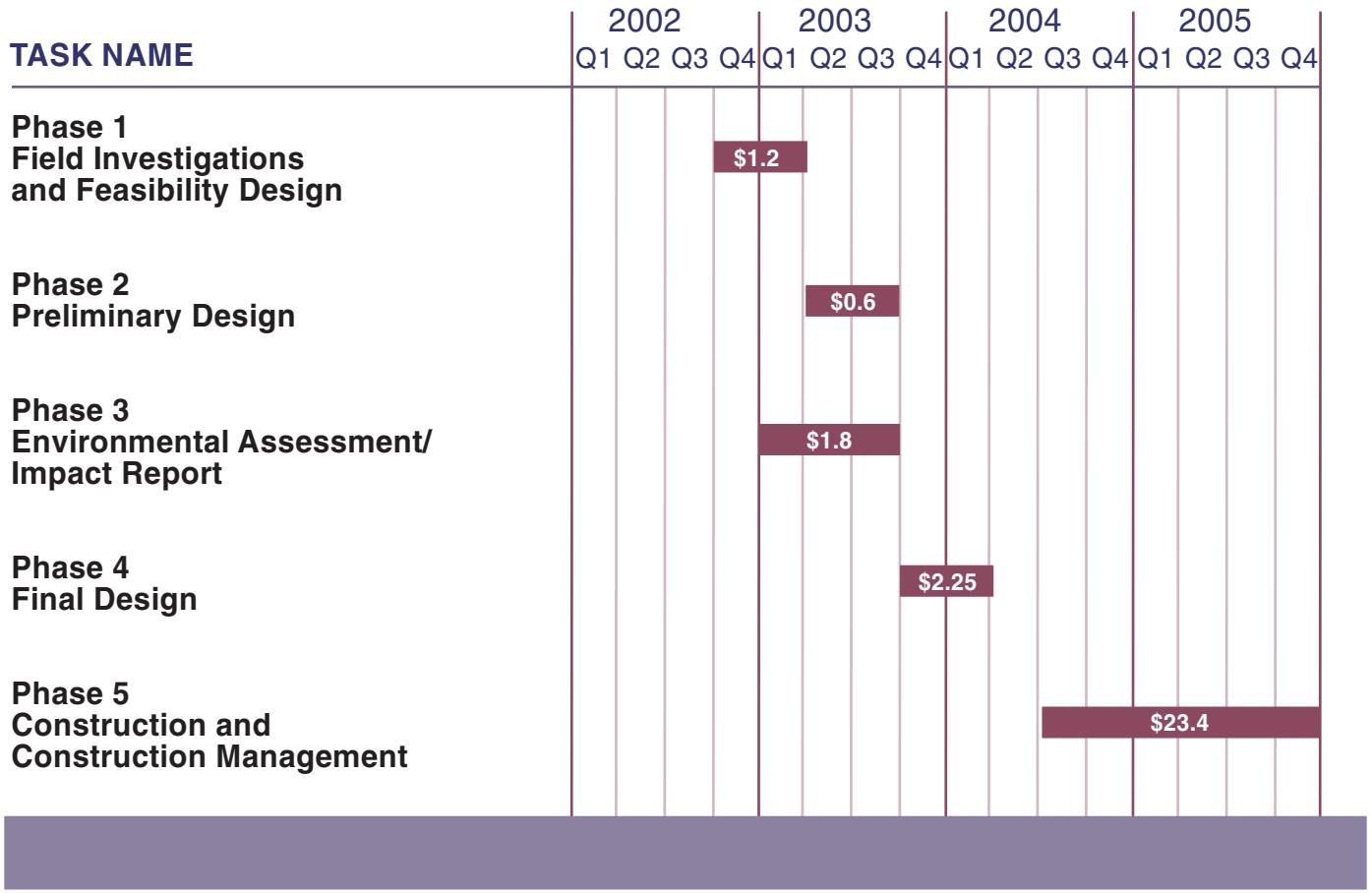
The study will be performed under the following tasks:

- Task 1 – Field Investigations and Feasibility Study
- Task 2 – Preliminary Design
- Task 3 – Environmental Assessment/Impact Report
- Task 4 – Final Design
- Task 5 – Construction

The District must take an action-specific approach to determine the feasibility of the canal lining project and to optimize project implementation. It is necessary to conceptually develop the design and implementation plan to determine project viability and economic feasibility. The proposed study would enable the District to more accurately quantify any possible decreases in surface water diversions and thus improve aquatic ecosystem conditions. The objectives of this study are to develop specific project details, such as exact project footprint, water supply benefits, and cost-benefit analysis. This project would identify proposed actions and provide a rough estimate of the corresponding contribution towards a quantifiable objective. The success of this project, would be enhanced through cooperative efforts between the District and adjacent districts and landowners.

Tasks 1 through 4 include the engineering and environmental investigations necessary to construct this project and include field investigations and feasibility design, preliminary design, EA/EIR, and final design. These phases are estimated to take 18 months to complete. It is expected that construction would be completed by spring 2006 (see Figure 2).

[1] CALFED Bay-Delta Program. 1999. *Water Use Efficiency Program.* Revised Draft, February 1999.



NOTE:
ALL DOLLAR FIGURES ARE IN MILLIONS

FIGURE 2
PRELIMINARY IMPLEMENTATION SCHEDULE
SEWD SUTTER-BUTTE MAIN CANAL LINING PROJECT

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The study would evaluate the feasibility of lining the Main Canal to optimize beneficial uses of the Joint Water District's water resources utilizing the above tasks.

2. Task List and Schedule

The proposed project scope includes the following tasks:

- **Task 1 - Field investigations and feasibility study—**Field investigations would determine the existing conditions including canal size and dimensions, canal capacity requirements, seepage rates, and groundwater elevations. According to the information obtained from the field investigation, a feasibility study would evaluate project costs and benefits. The estimated cost of this phase would be $1.2 million and require 6 months to complete.

- **Task 2 - Preliminary design—**The preliminary design drawings would include canal plan/profile sheets, water control structures, and instrumentation and control diagrams at a 10-percent level of completion. Preliminary design would also include aerial photography and mapping, geotechnical investigations, detailed environmental surveys, and right-of-way mapping. Preliminary design drawings would incorporate environmental mitigation requirements identified during Phase 3. The estimated cost of this phase would be $0.6 million and require 6 months to complete.

- **Task 3 - Environmental Assessment/Impact Report—**This task would complete the required National Environmental Policy Act/California Environmental Quality Act (NEPA/CEQA) investigations and documentation. Specific permitting requirements would be addressed. The estimated cost of this phase would be $1.8 million and require 9 months to complete. This phase could be conducted concurrently with phases 1 and 2.

- **Task 4 - Final design—**Contract drawings and specifications would be developed from the preliminary designs. The drawings and specifications would provide all necessary detail for bidding and construction. The design task is estimated to cost $2.25 million and require 6 months to complete.

Bar Chart Schedule: The proposed project schedule and quarterly expenditure projection per quarter are shown in Figure 2. The allocation of costs per task is shown in Table 1.

TABLE 1
Allocation of Costs by Task

Task No.	Task Description	Travel ($)	Consultants ($)	Construction ($)	Total Costs ($)	Requested Funds ($)
1	Feasibility Study	12,000	1,188,000		1,200,000	1,200,000
2	Preliminary Design	6,000	594,000		600,000	600,000
3	Environmental Report	18,000	1,782,000		1,800,000	1,800,000
4	Final Design and CM	22,000	2,228,000		2,250,000	2,250,000
5	Construction			23,400,000	23,400,000	23,400,000
Total		58,000	5,792,000	23,400,000	29,250,000	29,250,000

3. Monitoring and Assessment

If the project is deemed feasible and selected for implementation, a monitoring and assessment plan will be developed.

C. Qualifications

1. Project Manager

Doak Cotter

Watermaster/Secretary

Joint Water Districts Board. Doak has several years of experience with the Board. While working for DWR, Northern District, his duties included meter measurement, data logging, and developing rating tables for the Sacramento Rive and other water in the northern part of the valley.

His current responsibilities as Joint Board Manager are administering the common water right and distributing water to four member districts. He also maintains the Sutter Butte Canal from the Thermalito Afterbay to the Sunset Pumps.

For this project, he will administer the contract, oversee the work, and provide all required documentation to DWR.

2. External Cooperators

It is not anticipated that the project will require additional assistance from any other entity or agency. The Joint Water Districts Board will coordinate with landowners who may be affected by construction.

D. Benefits and Costs

1. Budget Justification

The estimated project cost is $29.25 million, and the allocation of costs by task is shown above in Table 1. The budget costs and a break down of the project cost as requested by CALFED is shown in the attached Breakdown Worksheet.

2. Cost Sharing

Any administrative and management costs of participation for the Districts would be the Districts part of the local cost share contribution.

3. Potential Benefits to be Realized and Information to be Gained

The proposed project is expected to generate numerous benefits for both local and regional water users. The expected project outcome and expected benefits include:

- Water Supply
- Water Management

TABLE 2

Budget Summary

	Item	Present Value ($)	Required Funds ($)	Description and Justification
(a)	Direct Labor Hours	$0	$0	Not applicable—Work for this feasibility shall be contracted out to consultants; District participation is part of the District's cost share
(b)	Salaries	$0	$0	Not applicable—Work for this feasibility shall be contracted out to consultants; District participation is part of the District's cost share
(c)	Benefits	$0	$0	Not applicable—Work for this feasibility shall be contracted out to consultants; District participation is part of the District's cost share
(d)	Travel	$0	$0	Not applicable—Work for this feasibility shall be contracted out to consultants; District participation is part of the District's cost share
(e)	Supplies and Expendables	$0	$0	Not applicable—Work for this feasibility shall be contracted out to consultants; District participation is part of the District's cost share
(f)	Services or Consultants	$5,800,000	$5,800,000	Engineering services shall be provided by consultants.
(g)	Equipment	$0	$0	
	Sub-total (a-g)	**$5,800,000**	**$5,800,000**	
(h)	Other Direct Costs			
	Construction	$23,400,000	$23,400,000	Project expected to be awarded through the conventional low bid process
	Right-of-Way/Legal—	$50,000	$50,000	Legal and Right-of-Way consultations shall be provided by District's attorney.
	Sub-total (h)	**$23,450,000**	**$23,450,000**	
(i)	Total Direct Cost	$29,250,000	$29,250,000	
(j)	Indirect Costs	$0	$0	Not applicable—Work for this feasibility shall be contracted out to consultants; District participation is part of the District's cost share
(k)	***Total Costs***	$29,250,000	$29,250,000	

The primary water supply and management benefit of the canal lining would be reduced seepage losses, which in turn would reduce diversions of Feather River surface water supplies from the Thermalito Afterbay. This reduced diversion quantity could then be stored in Oroville Reservoir and its release could be managed to serve other beneficial uses. The canal lining would also increase the canal's capacity, improve operations efficiency, help control nuisance weeds, possibly reduce overall O&M costs, and allow for year-round operation of the lined portion of the canal. The project may also allow the removal (or greatly reduced operation) of the Sutter Extension Water District's Sunset Pump Station. This pump station is used to supplement Sutter Extension Water District supply when the Main Canal is at maximum capacity and cannot deliver adequate supply to the upper end of the Sutter Extension Water District system. With the increased canal capacity, it may be feasible to either remove or reduce the operation of this pump station. The Sunset Pumps currently divert approximately 66,500 ac-ft of water annually from the Feather River to augment water supply for the Sutter Extension Water District. Elimination or decrease in diversion could contribute to increased in-stream flows and associated fisheries, water supply, water quality, and environmental benefits. Regional benefits in the form of reduced energy consumption by the Sunset Pumps could also result from project implementation.

These benefits contribute to the CALFED Goals.

4. Benefit Realized and Information Gained versus Costs

A $1.2 million feasibility study with a resulting total project possibly on the order of $29.25 million potentially could produce water supply benefits on the order of 24,000 acre-feet per year (ac-ft/yr).

E. Outreach, Community Involvement, and Acceptance

The project is an outgrowth of the Sacramento Valley Water Management Agreement among the Sacramento Valley water interests, the California Department of Water Resources, the U.S. Bureau of Reclamation, and export water users. The ongoing process that resulted in the Agreement has a strong public outreach component to inform agencies, environmental and other interests, and the public on the Agreement. Numerous presentations have been made to the CALFED Management Team and associated staff, county supervisors in all affected counties, water districts and their customers, and other organizations and agencies, including the State Water Resources Control Board, Trust for Public Lands, The Bay Institute, U.S. Fish and Wildlife Service, Natural Heritage Institute, The Nature Conservancy, and the public. Additional meetings will occur as the planning and implementation process proceeds. No individual or organization has expressed formal opposition to the Agreement or the projects to be undertaken under the Agreement. The projects, including the one described herein, have been summarized in a published "Short-term Workplan" prepared in conjunction with the Agreement.

Additionally, if they prove to be feasible and are selected for implementation, this and all other capital outlay projects associated with the Agreement will be subject to CEQA and NEPA documentation. The CEQA and NEPA statutes and implementing guidelines ensure that the public and all affected agencies will be fully informed of the project and its effects

and receive meaningful opportunities to provide input and review and comment on the project through the CEQA and NEPA public review process.

The project does not directly involve training, employment, or capacity building, but through more efficient and flexible agricultural water supply management, it potentially makes more water available for beneficial uses. A better managed water supply will help sustain the gains being made in the northern California economy by accommodating growth in industry and agriculture, providing growth in employment opportunities in all economic sectors.

The planning effort associated with the Agreement provides a formal framework for disseminating project information. Feedback on benefits achieved through the management and conservation measures recommended in the Agreement will be made available to all Sacramento Valley water contractors, Reclamation, and DWR through the planning partnership. The participants are aware of the need to share this information to ensure successful water supply management throughout the Sacramento Valley.